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1 Epistemicity in language: current horizons, future directions

Abstract: This chapter surveys current research on linguistic epistemicity, defined as a notional category concerned with knowledge management. We begin with one of its sub-categories: evidentiality, often defined as indicating the 'source of information'. Evidentials do not change the propositional content of utterances but add a layer of meaning. In line with the information-source definition, this layer is widely assumed to indicate 'how the speaker knows'. However, descriptive research shows that evidentials also convey meanings that link them to other types of epistemic markers. This becomes especially apparent in interactional data, where forms previously labelled 'evidential' often signal not so much the type of evidence as the basis on which the proposition should be integrated with what is already known. This chapter has three objectives. First, it shows how interactional data from under-described languages support the analysis of evidentials and other epistemic expressions as inherently intersubjective. Second, it argues that the use of grammatical evidentials in under-described Indigenous languages and of 'evidential strategies' in Standard Average European languages share more commonalities than often acknowledged. Third, it considers the implications of these observations for comparative and typological research, particularly the challenges of comparing languages on the basis of spoken corpora that vary in size, annotation, genre, and number of represented speakers.

Keywords: evidentiality, egophoricity, pragmatics, interactional linguistics, corpus linguistics

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1.1 Introduction

The title of this volume promises to 'expand the boundaries of epistemicity.' Before further discussion, let us briefly clarify what epistemicity is as a preface to discussing why an expansion is needed and what we stand to gain from it.

The notion of epistemicity has yet to receive widespread recognition in the linguistics literature, but the term was defined by Boye (2012) more than a decade ago as including linguistic expressions lending either 'epistemic justification' (evidentiality) or 'epistemic support' (epistemic modality) to propositions. This definition responded to concerns in the field of research during the first decade of the 21st century, namely a growing interest in evidential expressions, both lexical and grammatical, and a preoccupation with describing their semantics as encoding 'just' the source of information (i.e. evidentiality), or both the source of information and the speaker's degree of certainty (i.e. epistemic modality) – as these were seen as the only two options at the time.1

Now, over a decade later, we know more about evidentials in the languages of the world, and with this knowledge has come a number of insights. Firstly, it is apparent that, contrary to the divide between 'evidentiality proper', marked through dedicated morphemes, and 'evidential strategies', expressed by lexical means (Aikhenvald 2004), grammatical and lexical expressions of evidentiality might differ in form, but are very similar when it comes to their functions in discourse (e.g. Mushin 2013). Secondly, evidentiality as a notional domain is closely connected not only to epistemic modality, but also to other e-categories, such as egophoricity (Floyd, Norcliffe and San Roque 2018) and engagement (Evans, Bergqvist and San Roque 2018a, 2018b), as well as related unlabelled expressions used for negotiating knowledge in interaction. Together, they constitute the domain of epistemicity, to which we now turn.

In this chapter, epistemicity is conceived broadly, as a notional domain related to knowledge representation and knowledge attribution (cf. Bergqvist and Grzech 2023; Bergqvist 2023) in discourse. Below, we discuss the two parts of this definition in turn. The first part – knowledge representation – comprises strategies employed by language users² to (i) (dis)claim knowledge, and (ii) display attitudes towards it. The strategies used for claiming or disclaiming knowledge may be realised by

¹ Terms that instantiate some aspect of epistemicity in the paper are, epistemics, epistemic forms/ markers, and epistemic expressions. These can be defined as 'linguistic forms that signal some aspect of knowledge representation and attribution'.

² The term 'language users' includes both speakers and signers. However, since we do not discuss sign languages in this volume, in what follows we will use 'speaker' as a default label for the sake of brevity.

both grammatical and discursive means, and include e.g. the speaker signalling authority over knowledge, or commitment to it, or, conversely, lack of authority, or commitment. Attitudes towards knowledge, on the other hand, include e.g. knowledge being accessible, shared, or certain. These different knowledge-related (i.e. epistemic) attitudes that a speaker may adopt serve as a basis for the formulation of linguistic categories such as epistemic modality and evidentiality, but should not be treated as equivalent to these familiar labels. More often than not, forms analysed as belonging to a purported category draw on a variety of epistemic attitudes that go beyond what the category label suggests.

The second part of our definition of epistemicity relates to knowledge attribution. For each speaker, knowledge primarily resides in their own mind and is not available to everyone in the same way; therefore, it has to be negotiated in the course of communicative interaction. As part of the discursive negotiation of knowledge, it can be attributed to the speaker, addressee, or other participants and non-participants of interaction. Such negotiations are an indispensable component of how epistemicity should be investigated and explored.

The current set of categories central to descriptive and comparative research on epistemicity can be outlined as follows (cf. Bergqvist and Kittilä 2020 for discussion): epistemic modality – necessity and possibility (e.g. Nuyts 2001); evidentiality – knowledge access (e.g. Tournadre and LaPolla 2014); mirativity – non-integrated knowledge (e.g. DeLancey 1997); egophoricity – privileged knowledge (Floyd, Norcliffe and San Roque 2018); and engagement - knowledge distribution between speech act participants (Bergqvist and Knuchel 2019). Bergqvist in preparation outlines a functional domain of epistemicity under which such linguistic categories and notions can be subsumed and compared according to their defining features. However, this slate of e-terms is likely not an exhaustive list of categories devoted to representing and attributing knowledge in the languages of the world. We have every reason to believe that there is more to discover in this regard.

The conceptual connections between the defining features of the knowledgerelated linguistic and conceptual categories listed above have given rise to an increasing number of studies connecting descriptive linguistics to Conversation Analysis (cf. Veronesi 2024 for an overview). In this line of work, terms like epistemic authority, epistemic responsibility (Heritage and Raymond 2005; Stivers, Mondada and Steensig 2011), epistemic vigilance (Sperber et al. 2010), and the like, have entered the field of epistemic research. As the notional apparatus of the field expands, it also becomes apparent that the epistemic notions 'imported' from the CA tradition are relevant to the description of evidential systems, even those previously analysed only in terms of source of information. As a result, it has become clear that accurate descriptions of evidential/epistemic systems require detailed attention to the situational and the social context (Grzech, Schultze-Berndt and Bergqvist 2020; Bergqvist and Grzech 2023). The field is currently at a stage where it should continue to explore new systematisations in order to arrive at empirically accurate taxonomies.

Accordingly, the main aim of the present volume is to demonstrate the different angles from which epistemic research can be approached, particularly in the context of studying linguistic interaction, and, most notably, everyday conversations. The objective of the present chapter is to describe the state-of-the-art of epistemic research in the third decade of the 21st century, thus providing a background against which this volume can be read. Given the orientation of the chapters in the volume, and our own approach to epistemicity, this overview will focus on the research areas and themes most relevant to functionally-oriented studies of epistemicity:

- Descriptive work on epistemic systems across the languages of the world;
- Comparative/typological research on spoken corpora;
- The interplay of epistemic research with recent advances in the study of interaction and cognition.

The central argument we make throughout the chapter is that analysing – and comparing – corpora of natural(istic) language use is the most effective way to study epistemicity, if we aim to understand the function of epistemic categories in language. To support this argument, we will review the current state of research and outline the challenges and opportunities of a corpus- and dialogue-based approach to descriptive, comparative, typological, and theoretical studies on epistemic expressions and epistemicity as a notional domain.

The chapter is structured as follows: In Section 1.2, we argue for the need to use interactive/dialogical data to conduct empirically supported research on epistemicity, using evidentiality as a case study. Section 1.3 focuses on current opportunities and challenges in corpus-based research on epistemics, covering its descriptive (1.3.1), comparative (1.3.2) and typological (1.3.3) aspects. Section 1.4 discusses the importance of epistemic research for linguistic theory, in the context of recent advances in the study of interaction and (social) cognition. Section 1.5 contains a discussion unifying those themes, and Section 1.6 offers some final remarks.

1.2 A dialogue-based approach to research on epistemicity

In the previous section, we observed that the inquiry into epistemicity evolved from an interest in 'evidentiality proper,' understood as marking the source of information (cf. Aikhenvald 2004), towards a broader treatment of epistemic categories,

including notions related to the origins, ownership and shared/exclusive status of knowledge. The main point raised in the present section concerns a different, although related aspect of research on epistemicity: the fact that in order to be empirically substantiated, the study of evidentiality and related categories needs to be based on (or at least consider) natural, interactive language use.

This point is not new. 'Evidential practice', understood as the use of evidentials in everyday interaction, is an established strand of research (Mushin 2001; Michael 2008; Gipper 2011; Nuckolls and Michael 2014, a.o.). It has also been observed that evidentials are used differently in artificial/scripted vs. spontaneous language use. In languages that permit their non-occurrence, evidentials can be altogether absent e.g. from elicited sentences, but ubiquitous in 'high stake' interactions, where the participants' face, social position or reputation are at issue (see Grzech, Schultze-Berndt and Bergqvist 2020 for discussion).

Current research also suggests that everyday, face-to-face conversation is the context in which we can best appreciate the full array of discursive functions evidentials can fulfil. Furthermore, the spectrum of these functions is so broad that in order to account for what such data offers – we should abandon the definition of evidentiality based on information source, and instead aim for one that is grounded in language use, incorporating the pragmatics of evidentials (cf. Bergqvist and Grzech 2023 for a fully-developed version of this argument). This is true not only for newly described systems, but also for ones that have been considered as prime examples of evidentiality as marking of information source. Consider the evidential paradigm of Tuyuca (Barnes 1984; in Matlock 1989:215; cited by Bergqvist and Grzech 2023:5–6 with adjusted glossing):

(1) a. direct visual

diiga ape-wi soccer play-3.vis.dir.pst

'He played soccer' (I saw him play)

direct auditory b.

> diiga ape-ti

soccer play-3.NONVIS.DIR.PST

'He played soccer' (I heard the game, but didn't see it)

indirect visual

diiga ape-yi

soccer play-3.vis.indir.pst

'He played soccer' (I have seen evidence that he played: his shoe print on the field, but I didn't see him play)

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d. reported
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diiga ape-yigi soccer play-3.REP.PST

'He played soccer' (I obtained the information from someone else)

reasoning

diiga ape-hiyi soccer play-3.ASSUM.PST

'He played soccer' (It is reasonable to assume that he did)

At first glance, the Tuyuca paradigm appears to exemplify a system encoding differences in information source. However, upon closer examination of Barnes' (1984) description, Bergqvist and Grzech (2023:6) demonstrate that the contrast between the direct visual marker -wi (1a) and the indirect visual marker -yi (1c) is not about the directness of evidence, but rather about whether the event in question has publicly observable, predictable properties (e.g. playing soccer), or is the result of unpredictable behaviour by a third party (e.g. behaving crazy, or being sick). In other words, the distinction lies more with notions of agency and the public/private distinction, than type of evidence. Unsurprisingly, such subtle semantic differences are easily overlooked during elicitation or in experimental settings, and may only be fully appreciated and analysed in interactional, situated data.

The dialogue-based approach to epistemic research is not new, having been successfully applied to a significant portion of the field for decades. Evidentiality has been studied not only in languages with dedicated paradigms of evidential morphemes, but also in Standard Average European languages like English and Spanish, where it is expressed through lexical items such as adverbs. Given the high discourse-sensitivity of evidential expressions in Germanic and Romance languages, they are often examined in interactive contexts, and the possible role of (inter)subjectivity in evidential/epistemic research was recognised relatively early on (Bermúdez 2005, see Rosique and Martínez 2020:10-11 and references therein for discussion of the relationship between evidentiality and subjectivity). As a consequence, a significant part of studies on evidentiality in these languages has developed under the umbrella of Conversation Analysis, rather than within the descriptive paradigm focused on morphosyntax, or grammatical theory. For this reason, the strand of research on evidentials in well-known languages was for a long time considered distinct and conceptually separate from the study of dedicated evidential/epistemic paradigms in minority and endangered languages. However, when examining both sub-fields on a language-by-language basis, we see evidence supporting Mushin's (2013) claim that the morphosyntactic form of an evidential has little impact on its discursive function. Table 1 illustrates this by comparing functions of evidentials in a subset of indigenous South American languages and Romance languages.

Table 1: Discursive functions of evidentials in Amerindian languages of South America and Romance languages (adapted from (Grzech 2024a, 2024b).

Function of evidentials	Example languages where it is attested	
	Amerindian languages of South America	Romance languages
Indicating individual vs. shared knowledge/judgment	Yurakaré (isolate, Bolivia, Gipper 2011, 2014, 2015) Quechuan (Hintz and Hintz 2017; Jimenez Nina 2022)	Spanish (Cornillie and Gras 2015) Italian (Squartini 2012; Battaglia, Geddo and Miecznikowski 2021)
Indicating relative importance of a piece of information	Quechuan (Muysken 1995; Sánchez 2010; Grzech 2016) Aymaran (Klose 2015) Chipaya (Uru-Chipaya, Bolivia, cf. Hannß 2021)	
Indicating epistemic rights and responsibilities	Upper Napo Kichwa (Ecuador, (Grzech 2020, 2021) North Potosí Quechua (Bolivia, Jimenez Nina 2022)	Spanish (Figueras Bates 2019; Cornillie and Gras 2020)
Attenuating/ strengthening a speech act/discursive action	Cuzco Quechua (Peru, Faller 2002) Shipibo-Konibo (Panoan, Peru, Dubuis 2022)	Spanish (Figueras Bates and Kotwica 2020 and references therein; Albelda Marco 2020) Italian (Miecznikowski 2022) Catalan (Cuenca 2023) French (Pekarek Doehler 2022)
Indicating irony , mockery	Jaqaru (Aymaran, Peru, Hardman 2000:94)	Spanish (Santamaría 2009; Rodríguez Ramalle 2020)

Similar to the Tuyuca data in example (1), the semantic distinctions in Table 1 cannot be effectively captured through elicitation, as they depend on the specificity and nuances of the interactional context. They are also elusive for experimental research, given that, as mentioned above, many semantic and pragmatic nuances of epistemic expressions only become apparent in high stake interactions, where the speech act participants' face or social standing can potentially be affected. Once we gain awareness of the semantic subtleties encoded by evidential marking, it becomes clear that studying it in context - ideally using naturalistic, spoken language – is essential for obtaining empirically accurate results.

1.3 Corpus-based research on epistemicity

As proposed in the previous section, research on epistemicity should be grounded in interactive data, and it follows that it must rely on language corpora – ideally, spoken language corpora. A significant amount of corpus-based work on epistemicity is already underway. In this section, we explore three strands of this research: descriptive (1.3.1), comparative (1.3.2), and typological (1.3.3). For each, we discuss the stateof-the-art, the opportunities they offer the field, and the challenges they face.

1.3.1 Descriptive and documentary work

Descriptive research on epistemic systems has been increasing over the last decades. Since its beginnings in the 1980s, the field has expanded significantly, moving from efforts to disentangle source of evidence from epistemic modality towards more discourse-grounded efforts to describe epistemic systems in use. These efforts have progressed at different paces in different parts of the world. The descriptions of epistemic systems in Amerindian languages, particularly in South America, have been expanding their notional apparatus towards concepts related to interaction, stance, and epistemic authority for about twenty years (see references in Table 1 above). In the Himalayan region, which is a hotbed of egophoric marking systems, the change towards incorporating a broader set of notional categories is more recent and less widespread (cf. Zeisler 2021; Sandman 2024; Simon 2024), but a general move in the same direction is already apparent.

In language documentation and description, work on previously un(der)documented languages is mainly undertaken by PhD students. In the context of a typical PhD project, the language documenter has around 3 years to fulfil the academic requirements for their degree, undertake fieldwork, and – if they are outsiders to the language community – establish relationships with the local stakeholders, learn a new language and navigate a new culture – all that on top of documenting and describing a language, which might not have an established orthography or any prior description. In this context, it is understandable that many descriptions dealing with aspects of epistemicity replicate traditional approaches to describing epistemic marking systems. For evidentials, this means establishing whether they are also epistemic modals, and possibly exploring the scope properties of the attested markers. For egophoric systems, the traditional model requires checking for their distribution with subject persons across sentence types (declarative/interrogative) to confirm the expected patterns. In both cases, this approach entails that the researcher is not necessarily looking into how the forms under investigation are used in everyday interactions.

While the issues outlined above might well be a required introductory step in the description of an epistemic marking system, we also know that it is insufficient for providing an empirically substantiated account of epistemic forms. A comprehensive and detailed description of epistemic marking requires taking into account several aspects of grammar, interaction, and community norms of language use, including, but not limited to, the following (cf. e.g. Kamio 1997; Stivers, Mondada and Steensig 2011; Heritage 2012; Sandman and Grzech 2022; Bergqvist and Grzech 2023):

- Relationship between the speaker and the event;
- Discursive role adopted by the speaker/Stance;
- Knowledge distribution among the speech act participants (SAP);
- Epistemic authority/Territories of Information of SAP;
- Salience/Importance/Information Structure.

Considering these aspects of interaction is a challenging enterprise, and one which might not simply be attainable within the timeframe of a PhD degree, or any other short-term project where the researcher is not previously familiar with the analysed language. Moreover, engaging with the issues presented above requires a certain awareness of prior research, and a command of analytical notions and the literature, which might be unrealistic – and unfair – to expect of a PhD student as a relative newcomer to the field.

This has multiple implications for the field of epistemic research as a whole, and particularly for the documentation and description of epistemic marking systems. Given that we have already identified a number of important parameters for the description of epistemic forms, we should aim to provide descriptive and documentary linguists with tools and manuals for conducting epistemic fieldwork. Some efforts in this direction have been made (e.g. Barth and Evans 2017; cf. Grzech, Schultze-Berndt and Bergqvist 2020 for an overview), and progress with comparable efforts is crucial for the continued investigation of epistemicity and for the development of the field.

The findings of any research can only ever be as good as its design (Taylor and Del Fante 2020:29). In the case of descriptive research on epistemicity, an accurate design begins with clearly formulated identification, categorisation and labelling of key variables. This, in turn, is largely dependent on how the phenomena under study have been labelled and approached previously. Given that erroneous labelling can lead to erroneous research results (Matić and Wedgwood 2013:159), conceptual clarity is paramount, especially in research on epistemic expressions, which – as we argued earlier – needs to take into account a complex situation with interpersonal aspects of context in which the analysed expressions occur.

Any corpus analysis requires "assigning interpretative categories to a particular variable" (Van Enschot et al. 2024:1). This speaks to the main challenge in the description and analysis of epistemic systems, on all levels (descriptive, comparative, typological). If we assume – in accordance with what emerges from the data in an increasing number of language descriptions – that marking of knowledge is primarily a matter of pragmatics (see discussion in Zeisler 2024), both the identification of the relevant variables and the assignment of interpretative categories become exponentially more complex. The contributions in this volume offer some variables and modes of interpretation within the field of research on epistemic expressions, conceived in this broad fashion. We are aware that it might seem like we are complicating things, and that we risk losing sight of how epistemicity can be delimited (Patrick Dendale, p.c. during SLE2023), but we believe that, metaphorically speaking, this serves to zoom out before zooming in again to find the best possible cadre.

At present, the way researchers describe epistemic markers – especially when they do not conform to well-defined categories like source of information (evidentiality) or speaker involvement (egophoricity) - varies significantly, and is based on arbitrary labels. An example of such terminological inconsistency is the suffix/ clitic =mi in Quechuan, a South American language family with a paradigmatic set of evidential/epistemic markers. Cognates of =mi have been called validational marker (Tarma Quechua, Adelaar 1977), direct evidential (Wanka Quechua, Floyd 1997; Imbabura Quechua, Cole 1982; Conchucos Quechua, Hintz and Hint 2017), best possible grounds evidential (Cuzco Quechua, Faller 2002), speaker perspective marker (Pastaza Quichua, Nuckolls 2012), epistemic authority marker (Tena/ Upper Napo Kichwa, Grzech 2016, 2020), and assertional force marker (Conchucos Quechua, Bendezú-Araujo 2023). While the semantics and pragmatics of =mi differ across varieties, these various labels address different aspects of meaning and use, making comparisons quite challenging. Concerns for continuity further complicate this picture. In some varieties =mi lacks source-of-information semantics (see also Bendezú-Araujo and Grzech, this volume). Yet, many researchers, including the first author of this chapter, hesitate to abandon the label 'evidential' for fear of disconnecting from the existing literature.

Terminological inconsistency is not unique to Quechuan; it reflects a broader issue within descriptive research on epistemicity, and other parts of the grammatical design space. We are often compelled to rely on pre-existing labels and frameworks, even when we are aware that they do not fully capture the phenomena we study. Additionally, we are often not explicit about the interpretation of the labels we use. As a consequence, we push the authors of new descriptive studies in the same direction. The result is a Gordian knot of terminology, where each thread represents an established yet potentially outdated label that complicates, rather than clarifies, our understanding of the bigger picture.

A first step towards disentangling that knot, and establishing a baseline for future descriptions of the understudied epistemic systems could be to decide which specific semantic/pragmatic parameters are essential to consider. This resonates with the idea of comparative concepts (cf. Haspelmath 2010), whereby explicitly describing discourse functions of a given expression is more important than the label it is assigned. A catalogue of basic parameters and functions of epistemic expressions could serve as such a baseline for future work in this area. New research could explicitly acknowledge whether each of them was considered, and, if not, explain whether it was found to be (ir)relevant, or whether no sufficient/adequate data were available. Addressing these parameters systematically would not only lead to more robust descriptions, but also provide a more cohesive framework for comparative and typological studies, to which we turn in the following sections.

1.3.2 Comparative research

Comparative studies of epistemic systems – e.g. comparing how epistemic marking works in a small sample of languages – are relatively limited in number and scope. To the best of our knowledge, the most explored avenue of research in this regard is the comparison of evidential expressions in varieties of Latin American Spanish with evidentials from Amerindian languages, notably Quechua (e.g. Babel 2009; Dankel 2015; Dankel and Soto Rodríguez 2012, 2022; Soto Rodríguez and Dankel 2023) and/or Aymara (Quartararo 2017; Dankel et al. 2022), in order to explore the effects of language contact. There have also been limited efforts to compare languages of different types that are not in contact, e.g. English and Tibetan (Mélac 2023), or Kichwa and Wutun (Sandman and Grzech 2022). In general, however, given the amount of descriptive research on epistemic systems and strategies in the languages of the world, comparative studies are relatively underdeveloped.

The existence of this lacuna is not surprising, given multiple difficulties with comparing epistemic systems and strategies. The issues are not limited to terminological differences, as outlined in the previous section. For comparative studies to be viable, one needs to establish a baseline for what should be compared, i.e. decide on the categories to be studied, and ensure the availability of comparable data sets. In the case of epistemic systems, this is challenging for a number of reasons.

A hurdle particular to comparative research is the disparity of approaches applied in the descriptive studies of epistemic systems. There are obvious asymmetries between traditions of research that depend on available resources and historical contingencies. Research on Standard Average European mainly use methodologies drawing from Conversation Analysis, while most studies of epistemic systems in minority and endangered languages (at least until relatively recently)

focus on morphosyntactic description. This difference is gradually being bridged by the emergence of more CA-like studies for minority languages (see Section 1.3.1), and the creation of more corpora of naturalistic speech for these languages as part of language documentation efforts. Other difficulties in designing and executing comparative studies are less particular, and apply to any comparative research, not just the study of epistemics. They fall into three main categories: (i) design of comparable corpora, (ii) design of the analysis, and (iii) interpretation of findings (Taylor and Del Fante 2020:34). These are discussed in turn below.

The design of comparable corpora is possibly the least challenging of the three difficulties. It is true that vast differences exist between the available spoken corpora of majority languages, such as English and Spanish, and indigenous, endangered languages. However, it is possible to establish a common baseline in several ways: selection of sub-corpora, normalisation of frequencies per million words/tokens, selection of the same number of tokens from the languages to be compared, etc. An important point in selecting comparable corpora is that of comparability of genre across different languages. As Taylor and Del Fante (2020:34–35) rightly point out, the first step is to corroborate whether a particular genre exists in the languages to be compared.³ The following crucial step concerns corroborating the discursive function of the genre – for example, if we imagine comparing origin narratives in British English and in any Amerindian language spoken by a community of hunter-gatherers in the Amazon, the genre might receive the same label, but its cultural functions, contexts of use, and interpretations would be vastly different across the two speech communities, and thus not directly comparable.

The second issue is the design of the comparative analysis. This is a complex task consisting of several steps. If we consider the basic tools of corpus linguistics, such as frequency analysis, keyness, or collocation, these are all based on the assumption that we compare lexical items/constructions, and that we need to identify meaningful language units for comparison (cf. Taylor and Del Fante 2020:35). However, as discussed in Section 1.1, we already know that epistemic expressions are functionally similar, irrespective of their morphosyntactic status. For this reason,

³ The notion of genre is admittedly complex and the use of this term in the current discussion does not make a clear distinction between emic and etic approaches to the identification and definition of genre. It is clear that an etic view (e.g. a narrative on some topic) is easier to start from, but as part of the documentation of an indigenous language, it is important to go beyond such ad hoc conceptions of genre and approach their study from the speakers' perspective. For comparative purposes, some of the details resulting from such efforts may be backgrounded to allow for effective comparison between data sets. Such compromises are not specific to the definition of genre, however.

when comparing epistemic expressions in different languages, it is important to focus on function rather than form. For instance, the English adverb reportedly should not be directly compared to adverbs in languages like Cuzco Quechua, which have their own ways of expressing reportative meanings via dedicated morphemes. Consequently, the design of analysis must also include a phase in which "functional equivalence is operationalised in a replicable and transparent manner" (Taylor and Del Fante 2022:35), so as to enable establishing clear coding/analysis categories, and ensure replicability on the one hand, and validity on the other (Taylor and Del Fante 2020:39: Van Enschot et al. 2024:4). This is not a trivial task and it requires familiarity with the context of use for a given expression (Taylor and Del Fante 2020:36), as pointed out by Evans (2021:53–55) regarding social cognition in Dalabon. This issue is also paramount for the study of epistemics.

The third challenge – the interpretation of the findings – raises a particular set of problems in the context of comparative, corpus-based studies of epistemic expression, well beyond the challenge of obtaining comparable corpora, discussed above. In corpus-based research on majority languages, the heuristics for objectivity of data interpretation is inter-annotator agreement. In general, including more coders makes studies more reliable (Potter and Levine-Donnerstein 1999; cited by Van Enschot et al. 2024:15) and allows for a better understanding of the researched phenomenon (Van Enschot et al. 2024:15). In research on majority languages, it is common to have multiple annotators for the same data, given that the availability of trained native-speaker coders is not an issue. The opposite is true for corpora of indigenous, endangered languages. In this case, there are often very few native speakers who can work as annotators, and – in a vast majority of cases – an even more limited number of expert linguists/anthropologists. The sheer number of available annotators might, however, not be the biggest issue here. Having two or three coders is seen as sufficient for practical reasons, and this number might well be achievable for majority and minority language corpora alike.

What is potentially more problematic is the reliability of annotators. For most of the minority and endangered languages, a realistic setup is such that the main annotator for epistemic corpus analysis would be the language documenter or the anthropologist working with the speech community. As of 2025, these people are still, for the most part, non-native speakers of the languages in question. To annotate epistemic, context-dependent meanings is an utterly difficult task for non-native speakers, and this creates a disparity between the annotation of minority and majority language corpora. In the latter case, as mentioned above, researchers tend to be native speakers, and many more annotators are readily available. This can bear on the possibilities of comparison, and on the overall findings of a given research project.

That said, the interpretation of research results is always subjective no matter what the research topic and setup are, and rather than trying to eliminate it, we should aim to account for it (cf. Taylor and Del Fante 2020:41). On that front, majority language research might well have something to learn from studies on indigenous minority languages, which tend to be much more transparent about the data used, the types of coding decisions made, and the caution that should be exercised when extrapolating from the results of a particular study.

In sum, comparative research on epistemic systems is an area where much remains to be done, and methods for such research have yet to be explored, due to differences in data, as well as the notional apparatus, especially between minority and majority languages. As our understanding of epistemic systems develops, this area of study may reach a more articulated consensus about what meaningful results should be based on. In-depth comparisons of how epistemic systems are used would have much to contribute to our general understanding of both epistemic practice, and an empirically-grounded theory of this rich notional domain.

1.3.3 Epistemics in linguistic typology

While comparative studies can provide a more in-depth understanding of particular phenomena, as well as empirically supported generalisations, a cross-linguistically applicable theory of epistemicity needs to be informed by typological research. At this stage in the field's development, the big research question for epistemic typology is: Why and to what ends do humans use epistemic expressions? This question aligns with the functionally-grounded research perspective that we advocated for above.

Orienting typological research on epistemicity towards a functional, interactional perspective marks a departure from the simplistic view of epistemicity as reducible to a set of simple binary oppositions, e.g. direct vs. indirect evidence or involvement vs. non-involvement, in favour of a more nuanced picture in line with epistemicity as a functional domain. Usage-based typologies of epistemicity may help us understand how humans collaboratively create and manage knowledge in face-to-face interaction. This is timely, since interaction is increasingly acknowledged as fundamental to most topics of research in linguistics.

However, research on the typology of epistemics is also fraught with challenges. Traditional typology uses descriptive grammars as a primary source of data. As shown in Section 1.3.1, traditional grammars are not necessarily a reliable data source for the investigation of epistemic marking. Until quite recently, most of the parameters relevant to empirically-grounded descriptions of epistemics were either not acknowledged by descriptive linguistics, or seen as marginalia, and, consequently, not systematically incorporated into grammars. For majority languages,

this was to some extent counterbalanced by research on epistemics within more conversation analytical frameworks, where language use and epistemic strategies are considered in detail, but also in a manner that is not amenable to typological generalisations.

Wiltschko (2021:205) argues that '[f]or a typology to be useful, the parameters defining the types have to be primitives that can be applied to all forms and hence to all languages.' Consequently, the main challenge for a functionally-oriented typology of epistemics is to make sure that we compare like with like, i.e. identifying the relevant parameters and variables for comparison. Another issue is the sourcing of data amenable to typological research. Prompted by the natural starting point for research on epistemics, a possible typological approach is Corpus Based Typology (henceforth CBT), which aims to capture 'intra-linguistic variation in language use and its relation to aspects of language systems' (Schnell, Haig and Seifart 2021:6; cf. Schnell and Schiborr 2022; Levshina 2022). To date, however, this approach has mainly focused on linguistic phenomena that are frequent and relatively context-independent, e.g. issues related to word order, or phrase length (cf. Schnell and Schiborr 2022). Moreover, much of CBT research is based on corpora of oral, but monologic texts, such as DoReCo (Paschen et al. 2022). Typological research on epistemics, which are inherently intersubjective expressions, is more challenging, as it needs to be based on data that are both naturalistic and interactive (cf. Section 1.3.1). For these reasons, the CBT approach would have to be extended to support the investigation of sometimes infrequent forms, as well as to include dialogic speech, in order to be regarded as a well-suited framework for cross-linguistic research on epistemic practices.

A related approach is the use of parallax corpora, i.e. corpora of several languages that are not exactly parallel, in that they cannot be compared word-forword, but which were created using the same protocol. A state-of-the-art example of this is the SCOPIC project (cf. Barth and Evans 2017) which aims to study linguistic aspects of social cognition, collecting interactional data with the help of a set of visual stimuli called the Family Problem Picture Task. A detailed description of the project's method is outside the scope of this chapter, but as a typologically viable, methodological approach to epistemics, the parallax corpora produced within the SCOPIC project have several advantages. For example, they are interactive and purposefully designed to explore social cognition, and allow an insight into how knowledge rights and obligations are negotiated in dialogic interaction. The collection and coding of this type of data is extremely time-consuming, however, and their creation requires substantial time and effort from individual researchers in order to add to the existing resources, and to make possible large scale research on aspects of epistemicity inside this framework. This requires that the involved researchers are committed to the study of social cognition and that they have an interest in coding for stance and epistemic marking in the language(s) they work on. For the data sets that are already annotated and available, another issue is identifying a large enough number of tokens from which to generalise within individual languages, going back to a more general problem associated with research on epistemic marking.

Based on the above discussion, we argue that there are two types of prerequisites for functionally oriented, typological research on epistemics. Firstly, it requires interactional data for a sufficiently large number of languages to enable cross-linguistic comparison. Secondly, the data must support meaningful comparison, both in terms of similarity of content, and in containing enough tokens of different types of epistemic phenomena.

In light of these requirements, we need to continue developing methods to compare corpora of natural conversation. Such efforts are already part of the emerging field of pragmatic typology (cf. Dingemanse 2014), dedicated to the cross-linguistic, comparative study of language in social interaction. Within this framework, we have so far seen two major approaches to data. The first is the 'natural control method' (Stivers et al. 2009) which compares interactional structures, such as question-answer pairs: the object of comparison is thus defined on a structural basis. The second is the 'sequential control method' (Dingemanse and Floyd 2014), which compares types of interactional sequences oriented towards a certain common function, e.g. 'thanking' (Floyd, Norcliffe and San Roque 2018) or 'recruitment' (Floyd et al. 2020). These methods for studying various aspects of language use as social action align with the methodological and analytical goals of the present study, yet they may not be entirely transferrable to epistemic research. Keeping in mind Wiltschko's (2021) point – the need to use parameters that can be applied to all types and all languages – epistemics cannot be equated with the interactional structures and sequences they occur in.

A potential development of this approach would include starting from the possible configurations of knowledge in interaction. This can be modelled, given that there is a limited number of speech act participants (speaker/signer, addressee, audience), and a limited number of ways in which features such as 'knowing', 'authority', and 'responsibility' can be distributed amongst them. This approach can benefit from the fact that in our social interactions, we routinely find scenarios which are likely cross-linguistically valid and characterised by a specific distribution of relevant epistemic parameters, e.g. interactions between a master and an apprentice, or a caretaker and a child. This kind of approach to comparing epistemic systems has been successfully applied by Sandman and Grzech (2022), using methods from CA and interactional linguistics (cf. Couper-Kuhlen and Selting 2017), but it has yet to be tested across a larger number of languages.

Despite the challenges outlined above, the future of epistemic typology lies in finding methods to explore, compare and analyse corpora of language-in-use. By focusing on natural data and aligning typological and pragmatic approaches, we can develop a richer understanding of epistemic practices. This will not only enhance cross-linguistic generalisations, but also contribute to refining linguistic theories of knowledge distribution and negotiation in interaction.

1.4 Epistemicity, interaction and cognition

In the previous sections, we explored different approaches to empirical research on epistemicity from a synchronic perspective. Research on the evolution epistemics may further enhance our understanding of language development and change, and offer a perspective on language as a cooperative, social project.

'Social and relational concerns, rather than cognitive ones' (Stivers 2012:208; Drew 2018) are increasingly acknowledged as important for explaining the instrumental role of language use in the development of human sociality. In line with this view, interaction is now recognised as relevant for both the emergence of language (e.g. Planer and Sterelny 2021; Christiansen and Chater 2022; Fedorenko, Piantadosi and Gibson 2024), and for its structural properties (see Wiltschko 2021). Fedorenko, Piantadosi and Gibson (2024:583) argue that it is more plausible that language has evolved as a tool for communication, rather than thought, and that it 'reflects, rather than gives rise to, the signature sophistication of human cognition. Instead of providing the key substrate for thinking and reasoning, language likely transformed our species by enabling cross-generational transmission of acquired knowledge.'

Building on similar observations, researchers across the language sciences advocate for abandoning the dichotomy between interaction and cognition, focusing instead on their dynamic interplay. They emphasise that our understanding of language, communication, and cognition can benefit from 'looking beyond single minds toward cognition as a process involving interacting minds' (Dingemanse et al. 2023). Pragmatic theory also reflects this shift, with new proposals highlighting the role of the addressee and the creation of meaning as a collaboration between the speech act participants, rather than a one-way transmission from the speaker to the addressee (Hansen and Terkourafi 2023).

Evidence confirming that interaction is at the very core of language evolution is also found on a much more concrete level: in the meaning of particular linguistic expressions. Jara-Ettinger and Rubio-Fernandez (2024) argue that demonstratives -

a basic word class, documented in all known languages, and one of the first ones to be acquired by children – have, as their primary meaning, not the spatial distribution of objects, but the distribution of attention. Their findings suggest that 'listener attention – and joint attention in particular – is computed and accessed even in the simplest linguistic events' (Jara-Ettinger and Rubio-Fernandez 2024:7) and that 'language might not only encode visual attention (where to look in visual space) but also mental attention (where to search in conversational history)' (Jara-Ettinger and Rubio-Fernandez 2024:8).

These findings are important for the conceptualisation of epistemicity presented in this chapter. If demonstratives have the distribution of attention as their primary meaning, it is reasonable to assume that similar meanings can be encoded elsewhere in the deictic field (Bühler 1990). It is thus not controversial that, consistent with descriptive studies of language-in-use in an increasing number of languages, epistemic marking is inherently interactional, rather than primarily encoding source of information/involvement, and having various 'pragmatic extensions' (cf. Aikhenvald 2004). Claims to this effect have been made recently from a descriptive standpoint (Bergqvist and Grzech 2023), and the fact that experimental and cognitive research converges on similar results lends them increased credibility.

Empirically grounded, functionally oriented research on epistemics is an avenue for discovering more about the possible role of knowledge-related negotiations in the development of human sociality and societies. Previous research suggests that epistemic markers can be analysed as tools for managing the common ground (Grzech 2020). Hence, they can be conceptualised as resources for solving potential conversational conflicts, indicating relative importance of referents, negotiating stance, and many more fine-grained linguistic and social actions. This is in line with proposals that information management should be conceptualised as more complex than it has been to date (Ozerov 2021; Matić 2022). This approach also provides plausible theoretical links between epistemicity and information structure from a theoretical point of view (e.g. Rosique and Martínez 2020) and an empirical (e.g. Grzech 2020; Bendezú-Araujo 2023) viewpoint.

In sum, epistemic research can provide additional support for current work on the evolution of language and human sociality. It lends support to the argument that communication is a core motivation for the development of linguistic systems, as the main function of epistemics is facilitating the coordination of knowledge states between interlocutors. The famous claim that 'grammars code best what speakers do most' (DuBois 1985:362-63) is now being supported by experimentally grounded studies into language evolution, claiming that '[l]exical systems also show hallmarks of adaptation to specific communicative needs, more densely covering the parts of a conceptual space that a given community needs' (Fedorenko, Piantadosi and Gibson 2024:581 and references therein). If that is indeed the case,

then the complexity of epistemic meanings encountered cross-linguistically, and the pervasiveness of epistemic expressions (lexical and/or grammatical) in the languages of the world invite many hitherto unanswered research questions about the role of knowledge negotiation in the development of language and sociality.

1.5 Discussion

In this introductory chapter, we have outlined the current state of research in the field of epistemicity and pointed to some problems this field currently faces. We have introduced various notions (Section 1.1) and provided a rationale for functionally-oriented, interaction-based approaches to epistemicity as the most promising avenues of research (Section 1.2). Subsequently, we have discussed the main opportunities and challenges in current descriptive, comparative, and typological research on epistemics (Section 1.3). Finally, we have ventured to connect data-driven, functionalist approaches to epistemic research with recent advances in the study of language evolution and the links between sociality and cognition (Section 1.4).

Against the backdrop of this extended discussion, we now come back to the overarching topic of this volume: expanding the boundaries of epistemicity. The previous sections have sketched several of these boundaries, and have provided some suggestions for specific directions in which the field can advance. This section focuses on how, why, and to what end we should keep studying epistemicity, as well as on ways to expand the scope of this research as it progresses.

What the field needs the most is a coherent and consistent approach to exploring the diversity of epistemic expressions encountered in the languages of the world. Thus far, research on grammaticalised epistemic paradigms in less well-known languages (which tend to be indigenous minority languages), and on epistemic expressions in well-known majority languages has been advancing in parallel, without much exchange, and using different analytical frameworks. This has slowly started to change in recent years, with the integration of approaches informed by Conversation Analysis and Interactional Linguistics into the research on epistemic in minority languages.

However, for the field of epistemic research to become more unified, we need further adjustments from both directions. Research on (mostly) lexical expressions of epistemicity in majority languages needs to develop an awareness of the work being done in less-well known languages, and incorporate descriptive and documentary findings into its proposed theorisations. Descriptive research on minority languages, on the other hand, should look beyond a semasiological approach,

focusing on particular markers and the meanings they encode, and attempt to study broader categories of epistemic meaning and their expressions in different parts of grammar and the lexicon. Admittedly, given the restricted time and resources descriptive linguists usually have at their disposal, this can be a challenging avenue to pursue, but it should at least be acknowledged as the preferred direction for the further development of the field. By integrating research on well-known and lesser-known languages, we can develop a unified set of questions across the discipline.

This more inclusive approach would also allow us to change the types of questions we ask, particularly within descriptive linguistics. To paraphrase Verhagen's (2021, lecture 9) point on the direct vs. indirect speech dichotomy, we should not be asking whether language x has an indirect or direct evidential, but rather what are the tools made available in a given language to negotiate/manage knowledge ownership between speech act participants. Shifting to this type of focus will allow us to gradually build an understanding of why and to what end we use epistemics, moving beyond the current emphasis on what epistemic marking systems look like in different languages. In short, it would allow a transition from research on forms towards research on functions. After addressing this question, we may circle back to form, asking – again, paraphrasing Verhagen (2021) – why certain kinds of epistemic tools appear more or less frequently, and why certain semantic/functional distinctions are geographically restricted.

Such an approach would allow us to build a more holistic picture of the domain of linguistic epistemicity. It would also push on another boundary of epistemic studies: the applicability of our findings, not just within linguistics, but within broadly conceived research on human sociality and human mind. When we consider the field's development, from the first conceptualisation of evidentiality (Boas 1911), through the rise of modern interest in the notion (Chafe and Nichols 1986), towards the multiplicity of issues and approaches currently included in epistemic research, we see that the field has been moving from the fringes of linguistic enquiry towards its centre stage. Epistemic research has evolved from a niche study of semantic marginalia in 'exotic' languages into a major discipline that now draws significant attention, even filling lecture halls at international conferences. This growth highlights the increased recognition of epistemicity as central to our understanding - and use - of language.

With this in mind, when we think about further expansion of the boundaries of epistemicity, it does not seem like an overtly ambitious goal to have the field occupy a more central stage not only within research on language sciences, but also in their teaching. It is our hope that within the next few decades, we will see this subject area incorporated into curricula of teaching in and beyond academia, as well as systematically included in grammars and in manuals for linguistic fieldwork.

1.6 Conclusions

This chapter has discussed different facets of epistemic research, focusing on how its current goals and perspectives can be expanded and developed in future research. It proposes clear, actionable suggestions for this development and, given the scope of discussion, the aim for this concluding section is to highlight the most important take-away points.

First and foremost, the chapter has argued that epistemic research can only deliver reliable results if it is based on interactional data. For this reason, it is paramount that epistemic studies be based on spoken language corpora. In order to account for the use of epistemics, we need to consider the broader interactional and social context in which these markers and expressions are used.

Secondly, the field should incorporate data from both well-known and minority languages, and develop methodologies for comparing data from typologically different languages that also differ vastly in terms of resources, such as availability and sizes of corpora, the number of annotators, and the extent to which our interpretation of language-internal epistemic distinctions can rely on native-speaker intuitions. This is a work in progress, and an important goal for the field of epistemic studies to be achieved in the coming years.

Advances in these areas are essential not only for empirical accuracy, but also to make research on epistemicity more relevant and accessible to linguists and scholars in related fields. A more integrated approach will enable better generalisations about knowledge distribution and negotiation, and will help account for their pervasiveness in the world's languages, thus shedding light on human cognition and sociality. Epistemic research offers valuable insights not only into how we conceptualise knowledge, but also into how we create, structure, and maintain our social realities, as well as into the evolution of language itself.

The papers collected in this volume approach the above issues from a variety of angles, focusing on 'Epistemicity and context: different approaches to situated analysis of epistemic expressions' (Part 1), 'Change and development of epistemic meanings' (Part 2) and 'New parameters in epistemic research' (Part 3).

Part 1 begins with Chapter 2, in which Catarina Mauri and Silvia Ballarè examine the functions of the Italian verb capire ('to understand') in interaction. They demonstrate that explicit references to the process of understanding can serve a wide range of interactional functions that go well beyond the verb's lexical meaning. In Italian, these functions include establishing and maintaining joint attention, as well as constructing nuanced epistemic stances. Their analysis shows that a close examination of epistemic verbs can offer valuable insights into the inner workings of the 'epistemic engine' (Hertiage 2012), and shed light on the contextual and intersubjective factors to which it is sensitive.

In Chapter 3, Elena Battaglia and Johanna Miecznikowski approach the analysis of epistemicity in Italian interaction from a different angle. They apply the notion of evidential frame to the analysis of hearsay, and discover that referring to second-hand information can be used for diametrically opposed discourse purposes. The study also highlights the importance of detailed analysis of specific constructions including accounting for their sequential position when analysing and explaining epistemic meanings that arise in language-in-use.

Chapter 4, by Rebeka Kubitsch, investigates indirect evidentiality in Udmurt, a Uralic language spoken in the Russian Federation. In Udmurt, evidentiality is morphologically fused with tense. Kubitsch convincingly argues that previous descriptions of the language have overlooked the significant context sensitivity of its evidential markers. She demonstrates that the system is responsive to factors such as epistemic authority, reliability of information, and whether or not it has been assimilated by the speaker. The chapter highlights the value of studying epistemic marking within rich interactional contexts, as well as the relevance of re-visiting early analysis of epistemic systems, especially those that did not consider the potential relevance of intersubjectivity for describing and analysing epistemic forms.

Finally, in Chapter 5, Jiahong Wang and Yam Leung Lawrence Cheung describe pragmatically-motivated flexibility of use of the egophoric practice in Golog Tibetan. The study compares prototypical and non-prototypical distributions of (non-)egophoric copulas. The authors derive heterogeneous uses of the egophoric system from conventional associations between subject persons and epistemic authority, and from the interaction of these factors with the types of constructions where the copulas occur. These findings reinforce a central theme of the volume: that an accurate analysis of how epistemicity works requires considering social, discursive, and grammatical factors together, as parts of an intricate background that shapes the meaning and use of epistemic forms.

Part 2 of the volume explores how epistemic meanings develop and change. It opens with **Chapter 6**, in which **Karin Aijmer** re-examines the relationship between the English epistemic adverbs maybe and perhaps. Using a corpus-based approach, she investigates what it means for epistemic adverbs to be synonymous, focusing on their semantics, positions in utterances, and the sociolinguistic profiles of the speakers who use them. The study highlights the interplay between social and morphosyntactic factors, emphasising the need for a holistic approach for adequate analysis of epistemic expressions.

In Chapter 7, Christian Döhler examines demonstratives in Komnzo, a Yam language spoken in Papua New Guinea. He shows that these expressions fulfill a range of epistemic functions – from establishing joint attention to signaling epistemic proximity to an event. The chapter underscores the semantic and

morphosyntactic heterogeneity of Komnzo demonstratives, and invites reflection on both the developmental paths of epistemic marking systems and the inherently deictic nature of epistemic meaning.

Chapter 8, by Pierrre-Yves Modicom, concludes this part with a corpus-based study of epistemic verbs in Danish, Norwegian, and Swedish. The chapter explores how these verbs interact with first- and second-person subjects, analysing the morphosyntactic, semantic, and pragmatic properties of the different subject-verb combinations. The study uncovers ongoing processes of pragmaticalisation, whereby certain epistemic verbs are evolving into discourse markers, and thus contributes to our understanding of how grammaticalised epistemic expressions can emerge.

The three chapters comprising Part 2 illustrate the flexible and dynamic nature of epistemic meaning. They also highlight how the different aspects of the morphosyntactic, discursive and social processes affect the use of epistemic expressions, ultimately bringing about change in their use and meaning.

Part 3 comprises two final chapters. Chapter 9, by Shahani Singh Shrestha, examines the egophoric system of Kathmandu Newā. The author argues that the system includes not two, but three egophoric choices—among them, a zero EGO form. Her analysis shows that marker selection is influenced not only by the origo's involvement in the event, but also by factors such as intended formality and the (a) symmetry of social status between interlocutors.

Chapter 10, by Raúl Bendezú-Araujo and Karolina Grzech, revisits the analyses of evidential systems in two Quechuan languages spoken in Peru and Ecuador. The authors argue that incorporating the notion of speaker commitment allows for a more nuanced understanding of Quechuan evidential practice. Their proposal bridges two research traditions—formal semantic and descriptive—and shows how the concept of commitment can serve as a point of convergence, deepening our understanding of how evidentials are used in Quechuan and beyond.

Together, Chapters 9 and 10 highlight parameters that have often been overlooked in descriptions of epistemic systems, yet prove central to epistemic practices across diverse languages and communities. How many more such factors remain to be uncovered remains an open question. Together, the ten chapters in the volume sketch a diverse, but accurate picture of where the field of epistemic research stands in 2025, and signal the different directions in which it is likely to develop in near future.

Abbreviations

3rd person 3 ASSUM assumed direct DIR **INDIR** indirect NONVIS nonvisual PST past

reportative visual VIS

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